STATEWIDE PROBLEM IDENTIFICATION

FY 2006

FY 2006

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STATEWIDE PROBLEM IDENTIFICATION OVERVIEW

North Dakota's Highway Safety Plan process begins with a thorough study of crash records and other related data. An effort is made to identify the varied and complex causes of traffic crashes. The general problem areas (e.g., alcohol, safety belts, and police traffic services) are researched and then dissected into specific components that can help in better understanding the underlying causes and cures.

The causes of traffic crashes and the problems on North Dakota highways are reviewed based on crash record data, driver license data, motor vehicle statistics, available exposure data, Emergency Medical Services data, Highway Patrol statistics, Division of Toxicology data, and other special studies. Efforts are being made to analyze the multiple-crash variables through the use of various software packages. Variables in certain priority areas were selected for in-depth analysis: total, fatal, and injury crashes by county, age, and sex; restraint use; average blood alcohol content by age; etc.

In 2004, there were 100 fatalities on North Dakota's streets and highways. It is important to note that North Dakota's safety record is a result of cooperation between the motoring public and the traffic safety community, many of whose efforts receive funding support through the North Dakota Department of Transportation's Drivers License and Traffic Safety Division. These individuals make every effort to make safety a priority issue through public information, education, and awareness.

North Dakota has consistently ranked as one of the safest states in the nation and strives to maintain that distinction through effective traffic safety programs. The number of motor vehicle fatalities each year in North Dakota has dropped from a high of 227 in 1971 to the 100 experienced in 2004. The fatality rate has reflected a decrease from 5.73 deaths per 100 million vehicle miles of travel (VMT) in 1971 to 1.34 deaths per 100 million VMT in 2004. The statewide fatality rate has been consistently lower than the national fatality rate since 1979, with the exception of 1999.

The national fatality rate has followed a similar trend, falling from 1.91 deaths per 100 million VMT a decade ago, to 1.45 deaths per 100 million VMT in 2004 (***Figure 1***). North Dakota is maintaining its status as a national highway safety leader.

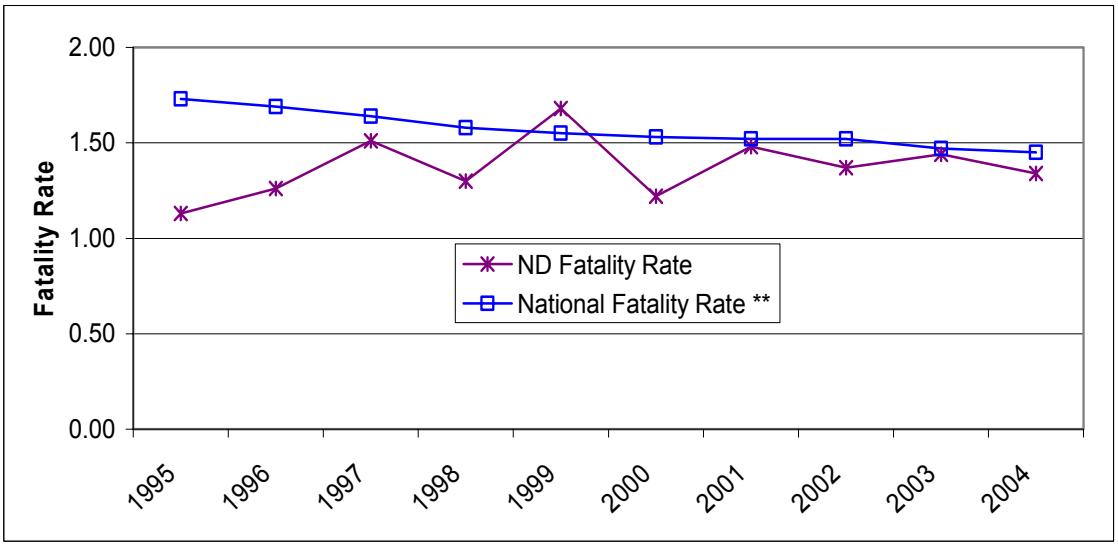
Figure 1

ND Fatality Rate vs. National Fatality Rate

Year	ND Fatalities	ND Fatality Rate	National Fatalities *	National Fatality Rate **
1995	74	1.13	41,817	1.73
1996	85	1.26	42,065	1.69
1997	105	1.51	42,013	1.64
1998	92	1.30	41,501	1.58
1999	119	1.68	41,717	1.55
2000	86	1.22	41,945	1.53
2001	105	1.48	42,196	1.52
2002	97	1.37	43,005	1.52
2003	105	1.44	42,643	1.47
2004	100	1.34	42,800	1.45

* Source: Fatality Analysis Reporting System

** Rate is based on fatalities per 100 million vehicle miles traveled



North Dakota Summary Data and Trends

Over the past decade, the potential for motor vehicle crashes has increased as the number of vehicle miles of travel has risen and the motor vehicle crash data reflects this. The number of licensed drivers in 2004 was 462,485, a .6 percent increase from 2003 when there were 459,566 licensed drivers. There were 16,992 total vehicle crashes in 2004, which is approximately a 2.2 percent increase from 2003. People injured in these crashes numbered 4,611 during 2004.

Figure 2 reflects the summary data for the past ten years (1995-2004). Vehicle miles traveled, the number of injuries, and the numbers of crashes reflect a steadily-increasing trend while the other categories have all experienced fluctuations.

Appendix A reflects the number of traffic fatalities from 1927 through 2003. Improved automotive technology, safety improvements, and roadway design are some of the factors contributing to the reduction in the number of fatalities from the peak levels in the 1960s and 1970s.

Figure 3 is a graphical representation of motor vehicle traffic crashes for 1995-2004 (excluding deer crashes).

Figure 2

North Dakota Traffic Safety Summary Data, 1995-2004

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Total Crashes	14,275	15,962	16,662	14,423	14,431	14,527	14,759	16,114	16,552	16,922
Fatal Crashes	65	80	89	79	92	80	96	84	95	95
Injury Crashes	3,907	4,120	3,984	3,394	3,312	3,153	3,129	3,252	3,244	2,701
PDO Crashes **LESS** Deer Crashes *	8,664	10,153	10,680	8,798	8,402	8,587	8,066	8,971	9,232	9,879
PDO Deer Crashes *	1,639	1,609	1,909	2,152	2,625	2,707	3,468	3,807	3,981	4,247
Fatalities	74	85	105	92	119	86	105	97	105	100
Injuries	5,743	5,970	5,900	4,917	4,962	4,619	4,608	4,886	4,817	4,611
VMT (in millions)	**6,546**	**6,768**	**6,943**	**7,093**	**7,101**	**7,061**	**7,084**	**7,094**	**7,290**	**7,439**
Total Crash Rate **	218.07	235.85	239.98	203.34	203.22	205.74	208.34	227.15	227.05	227.48
Fatality Rate **	1.13	1.26	1.51	1.30	1.68	1.22	1.48	1.37	1.44	1.34
Injury Rate **	87.73	88.21	84.98	69.32	69.88	65.42	65.05	68.88	66.08	61.98
Population	641,000	643,000	638,800	638,244	638,244	642,200	636,550	634,110	634,110	642,200
Licensed Drivers	448,781	462,782	452,163	454,933	457,890	458,944	455,921	456,271	459,566	462,485
Registered Vehicles	695,664	695,855	696,196	688,561	720,819	715,279	734,590	728,403	723,852	732,052

* Beginning with the FY 2004 HSP deer crashes are considered separately in the summary tables
** Per 100 Million Vehicle Miles Traveled (VMT)
PDO: Property Damage Only

Figure 3

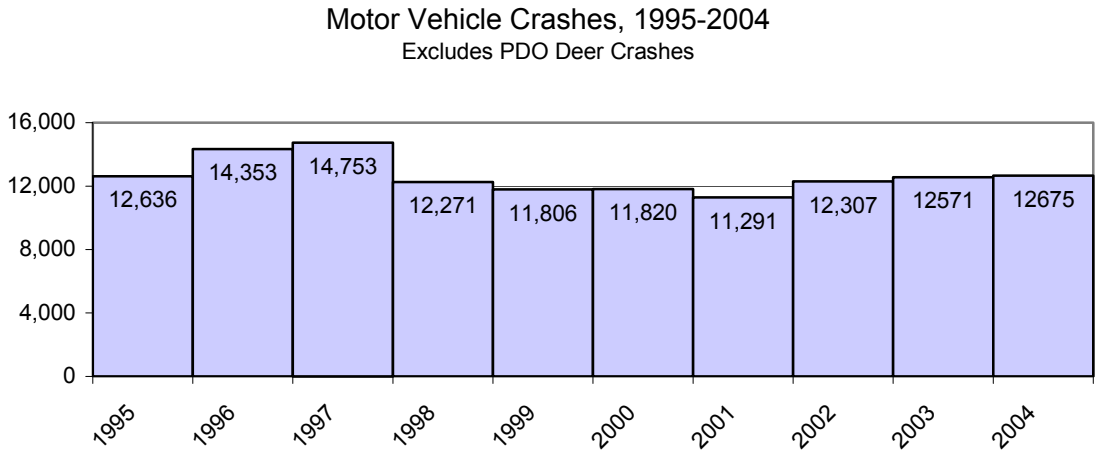


Figure 3 does not include deer crashes. Deer crashes have a significant effect on overall crash trends and are indicators of a set of circumstances quite different from other PDO crashes; therefore, deer crashes are not included in this trend analysis (see ***Figure 7*** for deer crash trends).

In 1997 motor vehicle crashes reach their highest point (14,753) for the past ten years. The 2004 count of 12,675 is the highest in the past five years and a .8% increase from 2003.

Some of this change can be attributed to a 10% increase in crashes occurring in snow conditions on a roadway with ice/compacted snow (3081 in 2003 and 3384 in 2004).

Crashes under dry surface conditions virtually remained the same from 7249 in 2003 to 7248 in 2004.

Increases in crashes during adverse surface conditions indicate drivers are not properly adjusting their driving tactics to match with changing driving conditions (e.g. too fast for conditions).

Figure 4

Summary of Reportable Crashes by City
for the 13 Major Cities
2003 - 2004

	Population	2004 per 1,000 Population	2004	2003	Change	Percent Change
Fargo	90,599	**27.0**	2,442	2,337	105	**4.5%**
Bismarck	55,532	**28.2**	1,567	1,716	-149	-8.7%
Grand Forks	49,321	24.0	1,186	1,146	40	**3.5%**
Minot	36,567	**29.2**	1,069	1,022	47	**4.6%**
Mandan	16,718	15.9	266	235	31	**13.2%**
Dickinson	16,010	21.4	342	385	-43	-11.2%
Jamestown	15,527	20.9	325	387	-62	-16.0%
West Fargo	14,940	17.0	254	245	9	**3.7%**
Williston	12,512	19.4	243	277	-34	-12.3%
Wahpeton	8,586	13.0	112	128	-16	-12.5%
Devils Lake	7,222	23.7	171	161	10	**6.2%**
Valley City	6,826	12.3	84	94	-10	-10.6%
Grafton	4,516	16.2	73	81	-8	-9.9%
Total	334,876	24.3	8,134	8,214	-80	-1.0%

Figure 4 indicates a decrease of -1.0% in crashes for the 13 largest cities (percentages for cities higher than -1.0% or 2004 per capita rates over 24.5 are in **BOLD**). Mandan had the largest relative increase of 13.2% (31 more crashes than 2003). Fargo, being the largest city, had the largest increase in the number of crashes (105, 4.5% increase).

Figure 5

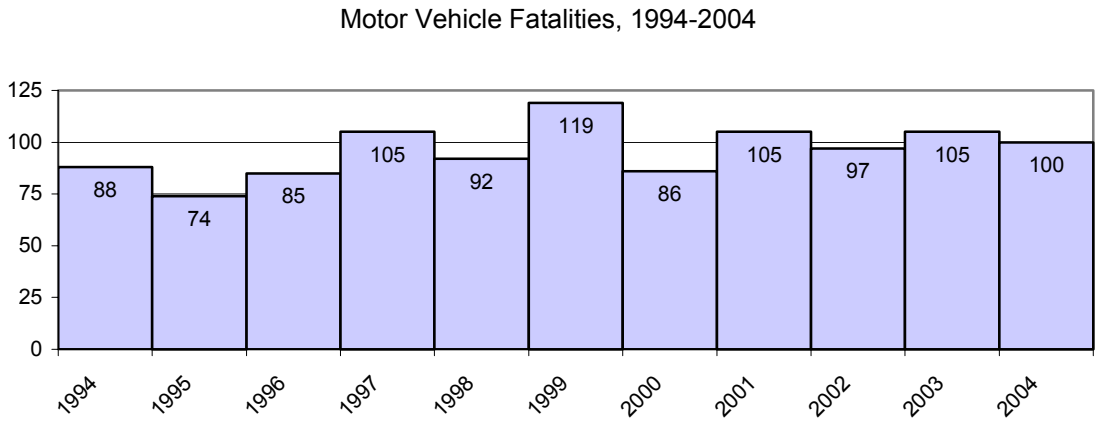
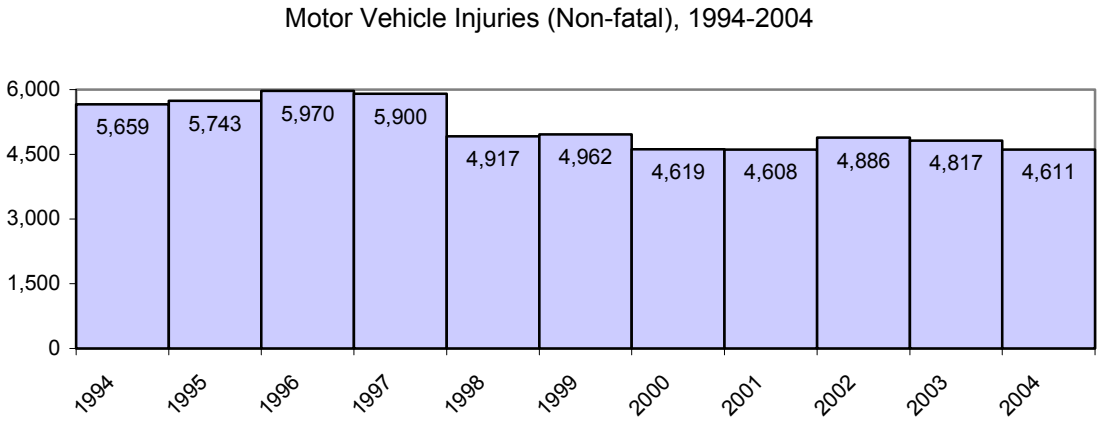


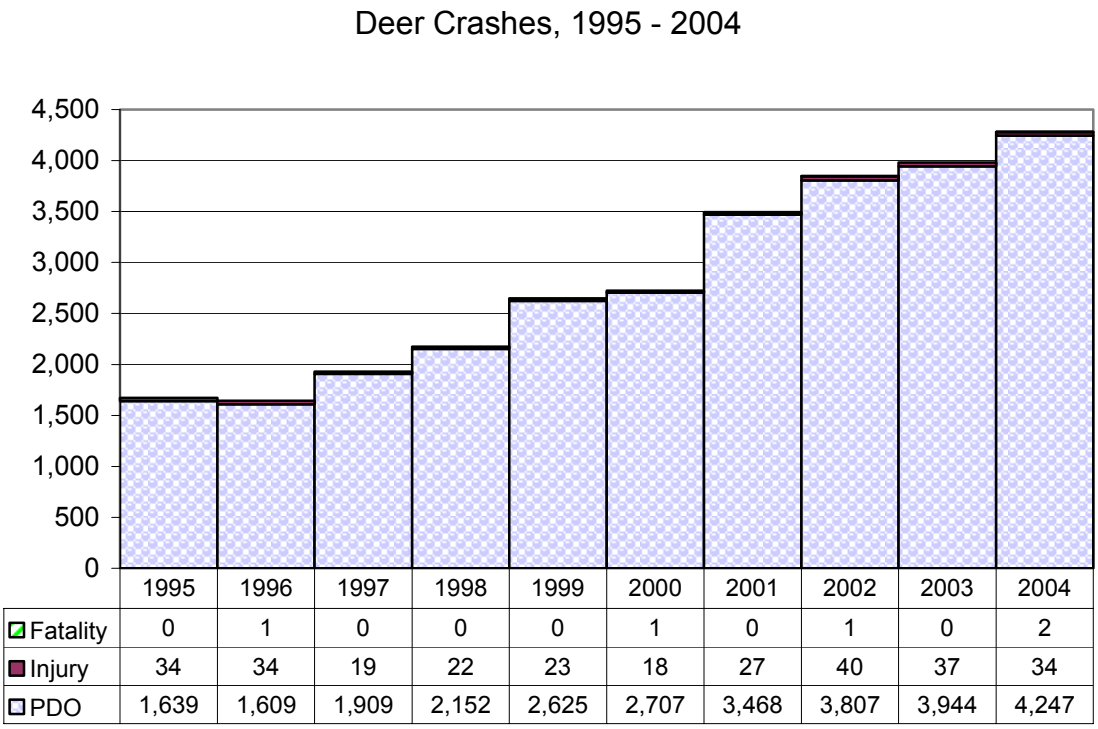
Figure 6



Fatalities decreased 5% from 2003 to 2004, and injuries decreased 4.3% from 2003 to 2004.

Deer crashes have steadily increased over the past 10 years (193%) The only decrease occurred between 1995 and 1996. The increase in deer crashes is due mainly to deer population boom. Since highway nighttime speed limits have increased, in accordance with new legislation, this increasing trend is likely to intensify. Deer crashes typically occur around dawn and dusk when the deer are most active. Public awareness campaigns are important to remind drivers to be vigilant in watching for the presence of deer near the roadway.

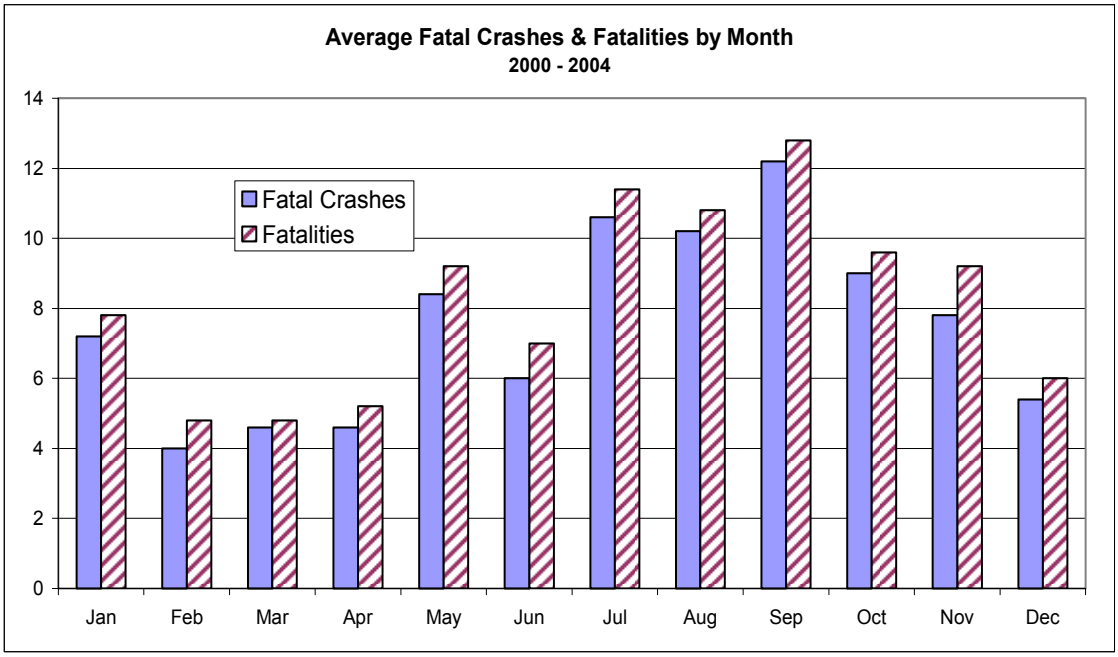
Figure 7



	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Fatality	0	1	0	0	0	1	0	1	0	2
Injury	34	34	19	22	23	18	27	40	37	34
PDO	1,639	1,609	1,909	2,152	2,625	2,707	3,468	3,807	3,944	4,247

Figure 8

Crashes by Month



Over the last 5 years (2000–2004), the month of September has averaged the most fatal crashes (over 12 per month) and the most fatalities (nearly 13 per month). July and August are the next worst months with about 10 fatal crashes and over 11 fatalities on average per month (***Figure 8***). While summer is a time when travel is highest, September does not appear to have higher VMT coinciding with the increased number of fatalities and fatal crashes.

Figure 9

CRASH ANALYSIS BY COUNTY 2001- 2004
CRASH RATE PER MILLION VEHICLE MILES OF TRAVEL

	2001		2002		2003		2004	
	Rate	#	Rate	#	Rate	#	Rate	#
Adams	1.04	36	1.16	40	1.31	45	1.85	59
BARNES	1.32	298	1.60	322	1.63	327	1.35	315
Benson	1.54	156	1.47	150	1.66	175	1.87	184
Billings	0.45	22	0.47	24	0.71	36	0.93	48
Bottineau	1.89	184	**2.38**	233	**2.34**	228	**2.24**	232
Bowman	1.69	74	1.58	70	1.92	85	1.30	57
Burke	0.96	40	0.98	40	0.72	30	0.85	38
BURLEIGH	**3.85**	1,901	**3.87**	1,976	**4.09**	2,099	**3.57**	1,940
CASS	**2.76**	2,879	**2.48**	2,605	**2.80**	2,958	**2.82**	3,314
Cavalier	1.48	92	1.45	91	2.02	126	1.63	106
Dickey	**2.53**	145	**2.90**	159	**2.48**	136	**2.85**	162
Divide	0.74	27	0.65	24	0.66	24	0.90	32
Dunn	1.12	63	1.28	70	1.12	61	1.34	71
Eddy	**2.42**	69	**2.13**	60	**2.94**	83	**3.04**	95
Emmons	1.33	80	1.37	78	2.05	117	1.27	76
Foster	1.87	84	1.97	90	1.83	84	1.63	126
Golden Valley	1.41	59	1.02	43	0.86	36	0.79	33
GRAND FORKS	**2.38**	1,350	**2.52**	1,443	**2.61**	1,495	**2.74**	1,647
Grant	0.99	39	0.84	32	0.87	33	0.85	29
Griggs	0.62	21	0.77	26	0.80	27	1.36	48
Hettinger	0.32	13	0.38	15	0.45	18	1.21	47
Kidder	1.19	122	1.16	128	1.29	142	1.18	132
LaMoure	**2.33**	147	**2.71**	159	**3.00**	176	**3.14**	166
Logan	**2.10**	50	**2.62**	65	1.69	42	**2.85**	65
McHenry	1.38	155	1.59	179	2.05	233	1.97	222
McIntosh	1.98	70	1.81	66	1.73	63	1.41	49
McKenzie	0.80	86	0.63	73	0.84	98	1.12	121
McLean	1.46	246	1.51	252	1.66	277	1.60	285
Mercer	1.94	158	**2.55**	193	**2.43**	186	**2.56**	216
MORTON	1.65	551	1.57	538	1.65	564	1.62	575
Mountrail	1.16	109	1.45	138	1.44	138	1.40	144
Nelson	1.14	82	1.35	97	1.36	97	1.93	137
Oliver	0.76	23	1.24	36	1.34	39	1.20	38
Pembina	1.27	162	1.46	191	1.47	184	1.78	224
Pierce	1.89	109	**2.27**	133	**2.42**	141	**2.74**	147
RAMSEY	**2.29**	374	**2.72**	437	**2.96**	473	**3.72**	538
Ransom	2.03	103	**2.45**	117	**2.30**	110	**2.49**	127
Renville	1.90	72	**2.12**	81	**2.35**	91	1.82	73
RICHLAND	1.43	362	1.39	355	1.58	402	1.46	384
Rolette	1.09	110	0.98	98	1.76	175	1.41	148
Sargent	1.15	70	1.83	104	1.34	76	1.16	68
Sheridan	0.71	20	0.71	20	0.71	20	**2.13**	57
Sioux	0.41	15	0.56	23	0.27	11	0.43	20
Slope	1.10	27	0.90	23	0.59	15	1.92	63
STARK	2.03	493	1.72	435	**2.30**	579	**2.16**	549
Steele	0.57	21	1.05	40	1.21	46	1.17	44
STUTSMAN	**2.27**	662	**2.29**	662	**2.38**	688	**2.17**	666
Towner	1.07	42	0.91	36	1.17	46	1.64	67
Traill	0.97	179	1.03	192	1.06	197	0.98	200
WALSH	2.02	336	**2.24**	374	**2.28**	370	**2.55**	442
WARD	**3.15**	1,439	**3.10**	1,427	**3.45**	1,617	**3.33**	1,686
Wells	1.25	87	1.50	104	1.65	114	**2.27**	163
WILLIAMS	1.98	413	1.94	392	**2.38**	481	**2.16**	447
Statewide	2.06	14,527	2.08	14,759	**2.27**	16,114	**2.27**	16,922

In 2004, Ramsey County had the highest crash rate per million VMT (3.72) and Sioux County had the lowest (0.43). The low rate in Sioux County may be due to under-reporting from Tribal jurisdictions. Counties with urban areas are in bold caps (see Figure 9).

Figure 10

Crash Severity by Unit Configuration, 2000 - 2004

All Crashes	2000		2001		2002		2003		2004	
	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent
Passenger Cars	13,245	55.4%	12,332	55.5%	13,352	54.9%	13,496	54.3%	11,197	50.5%
Pickup, Van, Utility	8,578	35.9%	7,923	35.7%	8,887	36.5%	9,270	37.3%	8,796	39.7%
Trucks	301	1.3%	289	1.3%	307	1.3%	280	1.1%	277	1.2%
Truck Tractor	456	1.9%	383	1.7%	430	1.8%	480	1.9%	475	2.1%
Motorcycle	91	0.4%	123	0.6%	143	0.6%	163	0.7%	175	0.8%
Other	1,226	5.1%	1,167	5.2%	1,219	4.9%	1,181	4.7%	1,256	5.7%
Total	23,897	100.0%	22,217	100.0%	24,338	100.0%	24,870	100.0%	22,176	100.0%

Fatal Crashes	2000		2001		2002		2003		2004	
	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent
Passenger Cars	47	41.6%	56	41.8%	48	38.1%	54	39.4%	51	38.3%
Pickup, Van, Utility	43	38.1%	55	41.0%	53	42.1%	56	40.9%	49	36.8%
Trucks	0	0.0%	2	1.5%	5	4.0%	5	3.6%	5	3.8%
Truck Tractor	11	9.7%	9	6.7%	13	10.3%	10	7.3%	9	6.8%
Motorcycle	4	3.5%	4	3.0%	1	0.8%	4	2.9%	9	6.8%
Other	8	7.1%	8	6.0%	6	4.7%	8	5.9%	10	7.5%
Total	113	100.0%	134	100.0%	126	100.0%	137	100.0%	133	100.0%

Injury Crashes	2000		2001		2002		2003		2004	
	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent
Passenger Cars	3,230	57.6%	2,992	56.2%	3,107	56.2%	3,087	56.2%	1,843	49.4%
Pickup, Van, Utility	1,822	32.5%	1,772	33.3%	1,852	33.5%	1,787	32.5%	1,346	36.0%
Trucks	81	1.4%	69	1.3%	77	1.4%	74	1.3%	53	1.4%
Truck Tractor	92	1.6%	82	1.5%	80	1.4%	102	1.9%	72	1.9%
Motorcycle	69	1.2%	98	1.8%	119	2.2%	141	2.6%	129	3.5%
Other	315	5.7%	311	5.9%	294	5.3%	304	5.5%	291	7.8%
Total	5,609	100.0%	5,324	100.0%	5,529	100.0%	5,495	100.0%	3,734	100.0%

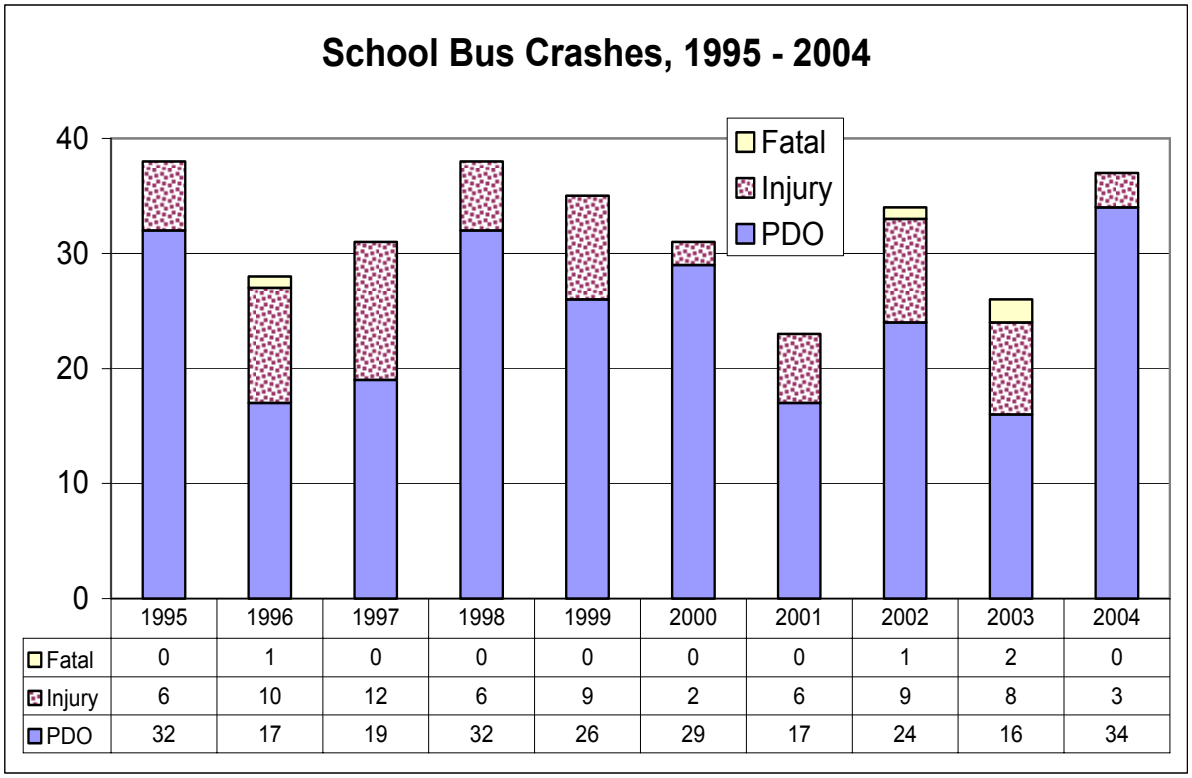
PDO Crashes	2000		2001		2002		2003		2004	
	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent
Passenger Cars	9,284	55.4%	10,197	54.6%	10,355	53.8%	9,303	50.8%	9,304	50.8%
Pickup, Van, Utility	6,096	36.4%	6,982	37.4%	7,427	38.6%	7,401	40.4%	7,401	40.4%
Trucks	218	1.3%	225	1.2%	201	1.0%	219	1.2%	219	1.2%
Truck Tractor	292	1.7%	337	1.8%	368	1.9%	394	2.2%	394	2.2%
Motorcycle	21	0.1%	23	0.1%	18	0.1%	37	0.2%	37	0.2%
Other	903	5.1%	848	4.9%	919	4.6%	869	5.2%	955	5.2%
Total	16,759	100.0%	18,683	100.0%	19,238	100.0%	18,309	100.0%	18,309	100.0%

In 2004, pickups (includes vans and utility) and tractor trailers were over-represented in fatal crashes. Pickups (includes vans and utility) were involved in fatal crashes 36.8% of the time, and involved in 36% of injury crashes and over 40% of PDO crashes. Tractor trailers were involved in fatal crashes 9% of the time, while being involved in only 1.9% of injury crashes and 2.2% of PDO crashes.

School Bus

In 2004, school buses were involved in 37 crashes, which is five crashes greater than the 10-year average. No fatalities occurred in 2004.

Figure 11



	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Fatal	0	1	0	0	0	0	0	1	2	0
Injury	6	10	12	6	9	2	6	9	8	3
PDO	32	17	19	32	26	29	17	24	16	34

Figure 12
Crashes by First Harmful Event

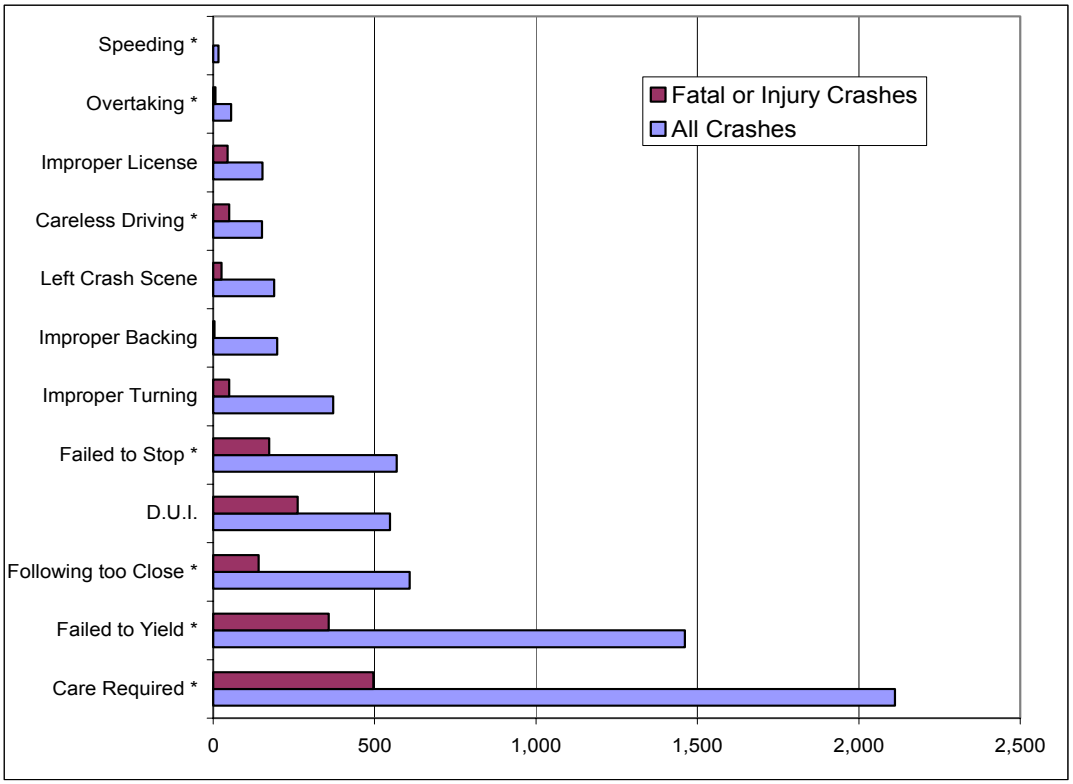
		ALL CRASHES		FATAL CRASHES		INJURY CRASHES		PDO CRASHES	
	TOTAL	URBAN	RURAL	URBAN	RURAL	URBAN	RURAL	URBAN	RURAL
MV in Transport	7,953	6,387	1,566	8	31	1,325	335	5,054	1,200
Deer	4,247	94	4,153	0	2	0	27	94	4,124
Overturn / Rollover	1,232	39	1,193	1	28	16	420	22	745
Parked Motor Vehicle	1,112	819	293	0	1	44	11	775	281
Highway Traffic Sign Post	132	43	89	0	0	4	12	39	77
Luminaire / Light Support	129	117	12	0	0	17	0	100	12
Tree	134	72	62	0	2	18	13	54	47
Embankment	74	6	68	0	1	4	32	2	35
Guardrail	118	21	97	0	2	3	14	18	81
Bridge	116	39	77	0	0	6	10	33	67
Ditch	191	12	179	0	0	2	49	10	130
Farm Animal	109	1	108	0	0	0	3	1	105
Other Post	108	31	77	0	2	4	6	27	69
Pedalcycle	63	56	7	1	0	50	4	5	3
Fence	67	16	51	0	1	0	5	16	45
Jackknife	68	1	67	0	0	0	0	1	67
Utility Post	67	37	30	0	1	7	1	30	28
Pedestrian	89	72	17	2	3	68	12	2	2
Curb	102	91	11	1	0	16	1	74	10
Mail Box	40	17	23	0	0	3	2	14	21
Small Animal	44	3	41	0	0	0	0	3	41
Culvert	31	1	30	0	0	0	13	1	17
Fire / Explosion	48	2	46	0	0	0	3	2	43
Ran Off Roadway	157	18	139	0	2	4	47	14	90
Median Barrier	24	8	16	0	0	1	0	7	16
Other Large Game	31	2	29	0	1	0	1	2	27
Immersion	17	0	17	0	1	0	2	0	14
Train	22	2	20	0	1	0	4	2	15
Separation of Units	23	6	17	0	0	0	0	6	17
MV Tran in Other Rdwy	19	3	16	0	0	2	5	1	11
Overhead Sign Support	7	5	2	0	0	2	0	3	2
Cargo Loss or Shift	19	5	14	0	0	0	1	5	13
Impact Attenuator	3	2	1	0	0	1	0	1	1
Downhill Runaway	1	0	1	0	0	0	0	0	1
Other Non-Collision	88	39	49	0	2	32	19	7	28
Other Collision	237	112	125	1	0	10	10	101	115
TOTAL	16,922	8,179	8,743	14	81	1,639	1,062	6,526	7,600

Collisions with other motor vehicles in transport were responsible for 41.1% of fatal crashes in 2004 (39 of 95) and 62.5% of all injury crashes (1,660 of 2,701). Incorporating defensive driving and the use of safety restraints are key elements to reducing fatal and non-fatal injuries. In addition, maintaining safe speeds in relation to the roadway conditions will reduce a large number of vehicle rollovers which occur primarily in rural areas. Deer crashes (4,247, an increase of 6.7%) continue to be a concern. Year around public awareness is important since deer are always present throughout the state. October and November are the months with the greatest number of deer crashes (about 1/3 occur during these "rutting" times). Deer crashes are also high in June during the "fawning" period. Please refer to **Study No. C-I: Deer Population Studies** for a North Dakota Game and Fish Department publication completed by Bill Jensen, Big Game Biologist (July 2002). In urban area crashes, motor vehicles in transport and parked motor vehicles accounted for 88.1% of urban "first harmful" events. In rural areas, motor vehicles in transport, deer and overturn/rollovers were the most common "first harmful" events, accounting for 79.5% of rural "first harmful" events.

Figure 13
Driver Violations

Driver Violations - 2004 Crashes

Violation	All Crashes	Percent	Fatal or Injury Crashes	Percent
Care Required *	2,112	27.8%	496	26.3%
Failed to Yield *	1,461	19.3%	358	19.0%
Following too Close *	609	8.0%	141	7.5%
D.U.I.	548	7.2%	262	**13.9%**
Failed to Stop *	568	7.5%	173	**9.2%**
Improper Turning	372	4.9%	50	2.7%
Improper Backing	198	2.6%	4	0.2%
Left Crash Scene	189	2.5%	26	1.4%
Careless Driving *	151	2.0%	50	**2.7%**
Improper License	153	2.0%	45	**2.4%**
Overtaking *	56	0.7%	7	0.4%
Speeding *	16	0.2%	1	0.1%
Other	1,156	15.3%	273	14.2%
Total	7,589	100.0%	1,886	100.0%



If the violations with an asterisk (*) are considered "aggressive driving behaviors," nearly 65% of drivers cited for violations are exhibiting aggressive driving behavior. Aggressive driving behavior is a plausible explanation for the 2004 increase in metropolitan area crashes. Percentages in **BOLD** are over-represented in fatal/injury crashes relative to all crashes.

NHTSA defines "aggressive driving" as "an individual commits a combination of moving traffic offenses so as to endanger other persons or property." The document goes on to clarify "aggressive driving behavior should not be confused with road rage, which is generally considered an assault – a criminal and . . . a much less common occurrence."

Source: www.nhtsa.dot.gov/people/injury/enforce/DOT%20Aggress%20Action

Age and Sex Distribution of Persons Involved in Crashes

Drivers aged 0-24 continue to be over-represented in crashes relative to their representation in the North Dakota driving population. While drivers aged 0-24 years comprise 18.1% of the driving population, they are 34.6% of the drivers involved in all crashes and 45.6% of the drivers involved in injury crashes. Regardless of the number of miles driven by this age group, reducing their crash rates would significantly impact the safety of North Dakota's roads.

Figure 14

Licensed Drivers and Crash Involvement by Age, 2004

	Licensed		Involved in All Crashes		Involved in Injury Crashes	
Age	Drivers	Percent	Drivers	Percent	Drivers	Percent
13 & Under	0	0.0%	9	0.0%	2	**0.1%**
14 - 17	17,922	3.9%	2,359	**9.5%**	476	**12.5%**
18 - 20	26,729	5.8%	3,091	**12.5%**	629	**16.5%**
21 - 24	38,978	8.4%	3,123	**12.6%**	630	**16.5%**
25 - 34	73,012	15.7%	3,961	**16.0%**	298	7.8%
35 - 44	78,562	16.9%	3,957	16.0%	690	**18.1%**
45 - 54	91,204	19.6%	3,739	15.1%	340	8.9%
55 - 64	60,443	13.0%	2,201	8.9%	359	9.4%
65 - 74	40,819	8.8%	1,233	5.0%	187	4.9%
75 & Older	37,093	7.9%	1,039	4.4%	206	5.3%
Total	464,762	100.0%	24,712	100.0%	3,817	100.0%

Age categories which are over-represented are displayed in **BOLD**

In 2004, 73.5% of drivers involved in fatal crashes were male. This pattern has been observed consistently for the past several years. Males represented 50.4% of North Dakota licensed drivers, 55.3% of drivers involved in injury crashes, and 58.7% of drivers involved in all 2004 traffic crashes (***Figure 16***). Young male drivers are a key to improving the safety of North Dakota's highways.

Figure 15

Licensed Drivers and Fatal Crash Involvement by Age and Sex, 2004

Age	Licensed Male Drivers	Percent	Licensed Female Drivers	Percent	Involved in Fatal Crashes Male Drivers	Percent	Involved in Fatal Crashes Female Drivers	Percent
13 & Under	0	0.0%	0	0.0%	0	0.0%	0	0.0%
14 - 17	9,238	3.9%	8,684	3.7%	6	**6.0%**	4	**11.1%**
18 - 20	13,715	5.9%	13,014	5.6%	4	4.0%	3	**8.3%**
21 - 24	19,947	8.5%	19,031	8.1%	4	4.0%	2	5.6%
25 - 34	37,618	16.1%	35,394	15.1%	16	16.0%	7	**19.4%**
35 - 44	39,567	16.9%	38,995	16.6%	21	**21.0%**	6	**16.7%**
45 - 54	46,402	19.8%	44,802	19.1%	23	**23.0%**	4	11.1%
55 - 64	31,050	13.3%	29,393	12.5%	10	10.0%	1	2.8%
65 - 74	19,694	8.4%	21,125	9.0%	4	4.0%	3	8.3%
75 & Older	17,073	7.2%	20,020	10.3%	12	**12.0%**	6	**16.7%**
Total	234,304	100.0%	230,458	100.0%	100	100.0%	36	100.0%

Age categories which are over-represented are displayed in **BOLD**

Figure 16

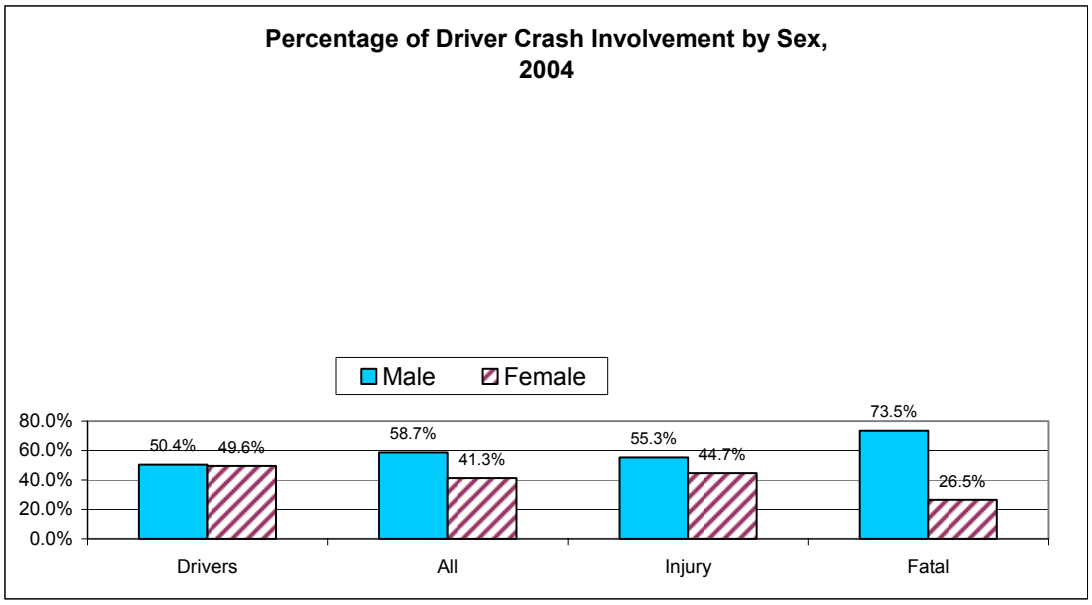


Figure 17

Individual Crash Involvement by Age, 2004

Age	2000 Census	Percent	Fatalities	Percent	Injuries *	Percent
0 - 4	39,094	6.1%	1	1.0%	71	1.6%
5 - 9	43,223	6.7%	2	2.0%	118	2.6%
10 - 13	37,484	5.8%	1	1.0%	128	2.8%
14 - 17	41,098	6.4%	10	**10.0%**	580	**12.7%**
18 - 20	33,356	5.2%	4	4.0%	604	**13.3%**
21 - 24	39,360	6.1%	4	4.0%	552	**12.1%**
25 - 34	76,616	11.9%	16	**16.0%**	647	**14.2%**
35 - 44	98,641	15.4%	10	10.0%	627	13.8%
45 - 54	85,464	13.3%	20	**20.0%**	550	12.1%
55 - 64	53,267	8.3%	6	6.0%	298	6.5%
65 - 74	46,001	7.2%	7	7.0%	169	3.7%
75 & Older	48,596	7.6%	19	**19.0%**	207	4.6%
Total	642,200	100.0%	100	100.0%	4,551	100.0%

* Injuries without an age reported are excluded

Age categories which are over-represented are displayed in **BOLD**

Ages 14-17 years, 25-34 years, 45-54 years, and 75 years and older are over-represented in fatality counts for 2004 when compared to their respective portions of the overall population. Ages 14–34 are over-represented in injury counts. This table represents fatal victims and individuals injured (drivers, passengers and non-motorists).

Age and Sex of Pedestrians/Pedalcyclists Injured or Killed

Figure 18

Pedestrian and Pedalcyclist Involvement by Age, 2004

Age	Injuries *	Percent	Fatalities	Percent	Total	Percent
0 - 4	3	1.6%	0	0.0%	3	1.7%
5 - 9	7	4.2%	0	0.0%	7	4.0%
10 - 13	27	16.2%	0	0.0%	27	15.5%
14 - 17	24	14.4%	0	0.0%	24	13.8%
18 - 20	15	9.0%	0	0.0%	15	8.6%
21 - 24	9	5.4%	0	0.0%	9	5.2%
25 - 34	20	12.0%	1	14.3%	21	12.1%
35 - 44	19	11.4%	2	28.6%	21	12.1%
45 - 54	21	12.6%	0	0.0%	21	12.1%
55 - 64	13	7.8%	0	0.0%	13	7.5%
65 - 74	5	3.0%	1	14.3%	6	3.4%
75 & Older	4	2.4%	3	42.9%	7	4.0%
Total	167	100.0%	7	100.0%	174	100.0%

* Injuries without an age reported are excluded

Figure 19

Pedestrian Involvement by Age, 2004

Age	Injuries *	Percent	Fatalities	Percent	Total	Percent
0 - 4	2	2.2%	0	0.0%	2	2.2%
5 - 9	3	3.4%	0	0.0%	3	3.2%
10 - 13	9	10.1%	0	0.0%	9	9.6%
14 - 17	8	9.0%	0	0.0%	8	8.5%
18 - 20	7	7.9%	0	0.0%	7	7.4%
21 - 24	5	5.6%	0	0.0%	5	5.3%
25 - 34	11	12.4%	1	20.0%	12	12.8%
35 - 44	10	11.2%	1	20.0%	11	11.7%
45 - 54	14	15.7%	0	0.0%	14	14.9%
55 - 64	11	12.4%	0	0.0%	11	11.7%
65 - 74	5	5.6%	0	0.0%	5	5.3%
75 & Older	4	4.5%	3	60.0%	7	7.4%
Total	89	100.0%	5	100.0%	94	100.0%

Figure 20

Pedalcyclist Involvement by Age, 2004

Age	Injuries *	Percent	Fatalities	Percent	Total	Percent
0 - 4	1	1.3%	0	0.0%	1	1.3%
5 - 9	4	5.1%	0	0.0%	4	5.0%
10 - 13	18	23.1%	0	0.0%	18	22.5%
14 - 17	16	20.5%	0	0.0%	16	20.0%
18 - 20	8	10.3%	0	0.0%	8	10.0%
21 - 24	4	5.1%	0	0.0%	4	5.0%
25 - 34	9	11.5%	0	0.0%	9	11.3%
35 - 44	9	11.5%	1	50.0%	10	12.5%
45 - 54	7	9.0%	0	0.0%	7	8.8%
55 - 64	2	2.6%	0	0.0%	2	2.5%
65 - 74	0	0.0%	1	50.0%	1	1.3%
75 & Older	0	0.0%	0	0.0%	0	0.0%
Total	78	100.0%	2	100.0%	80	100.2%

Figure 21

Summary of Pedestrian/Pedalcyclist Injury/Fatalities for the 13 Major Cities

2004

	Population	Percent of Urban Population	Per 1,000 Population	Pedestrians	Pedalcyclists	BOTH	Percent
Fargo	90,599	27.1%	**0.54**	20	29	49	**33.3%**
Bismarck	55,532	16.6%	**0.49**	15	12	27	**18.4%**
Grand Forks	49,321	14.7%	0.34	6	11	17	11.6%
Minot	36,567	10.9%	0.41	12	3	15	10.2%
Mandan	16,718	5.0%	0.18	2	1	3	2.0%
Dickinson	16,010	4.8%	**0.56**	5	4	9	**6.1%**
Jamestown	15,527	4.6%	0.32	5	0	5	3.4%
West Fargo	14,940	4.5%	0.07	0	1	1	0.7%
Williston	12,512	3.7%	**0.48**	5	1	6	**4.1%**
Wahpeton	8,586	2.6%	**0.70**	3	3	6	**4.1%**
Devils Lake	7,222	2.2%	**0.55**	1	3	4	**2.7%**
Valley City	6,826	2.0%	0.44	1	2	3	2.0%
Grafton	4,516	1.3%	0.44	0	2	2	**1.4%**
Total	334,876	100.0%	0.44	75	72	147	100.0%

In 2004, over 84% of pedestrian or pedalcyclist injuries or fatalities occurred in the 13 major cities of North Dakota. Several cities had "Per 1,000 Population" rates greater than the overall rate for the 13 major cities.

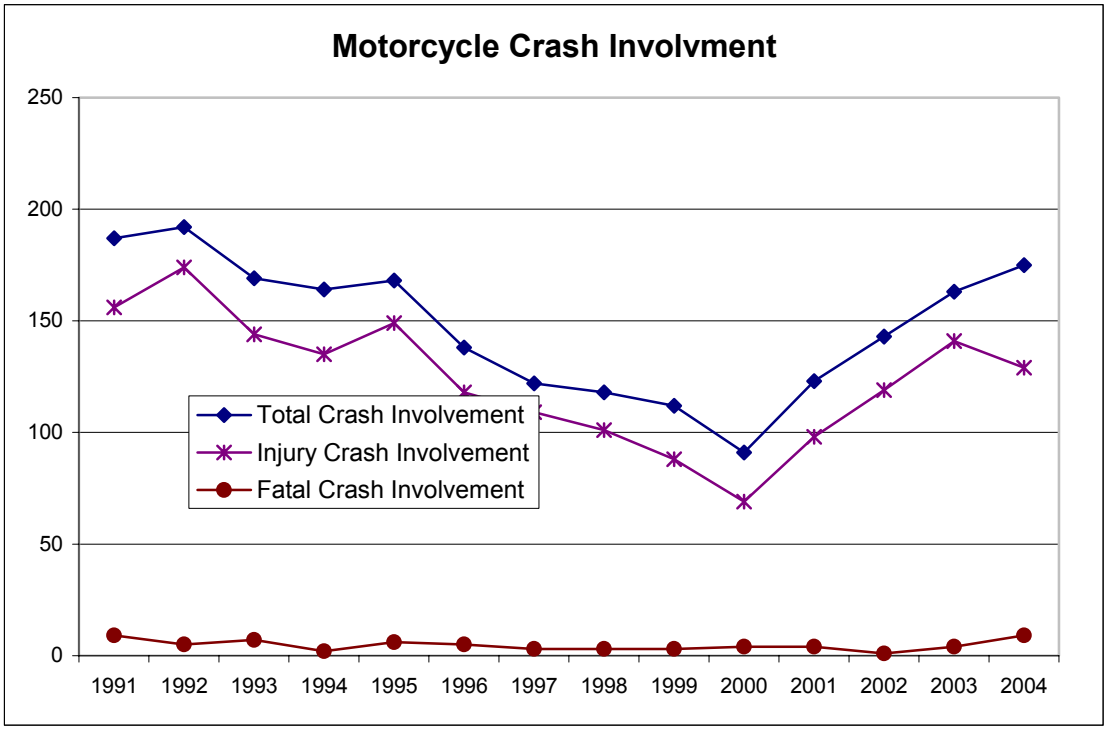
Crashes involving pedestrians can occur during any month of the year, while crashes involving pedalcyclists typically occur during the more temperate months from April to October. The months with the most outdoor activity (June, July, and August) are the months with the most pedestrian and pedalcyclist injuries or fatalities. Crashes involving pedalcyclists are more likely to occur in late afternoon (between 5 p.m. and 6 p.m.), while pedestrian crashes are more likely to occur in the early morning (between 7 a.m. and 8 a.m.) or the late afternoon (between 3 p.m. and 6 p.m.). These times are intuitive as they coincide with children going to and from school and times when adult activity is the greatest.

Motorcycles

Figure 22

Motorcycle Summary Data
1991 - 2004

Year	Licenses	Registered Motorcycles	Total Crash Involvement	Injury Crash Involvement	Fatal Crash Involvement
1991	36,534	19,181	187	156	9
1992	35,893	18,464	192	174	5
1993	37,400	17,965	169	144	7
1994	38,932	17,576	164	135	2
1995	39,124	16,894	168	149	6
1996	39,106	16,394	138	118	5
1997	39,140	16,051	122	109	3
1998	39,367	16,167	118	101	3
1999	39,666	16,383	112	88	3
2000	40,101	17,031	91	69	4
2001	40,486	18,024	123	98	4
2002	41,122	17,701	143	119	1
2003	42,680	18,991	163	141	4
2004	44,364	22,951	175	129	9



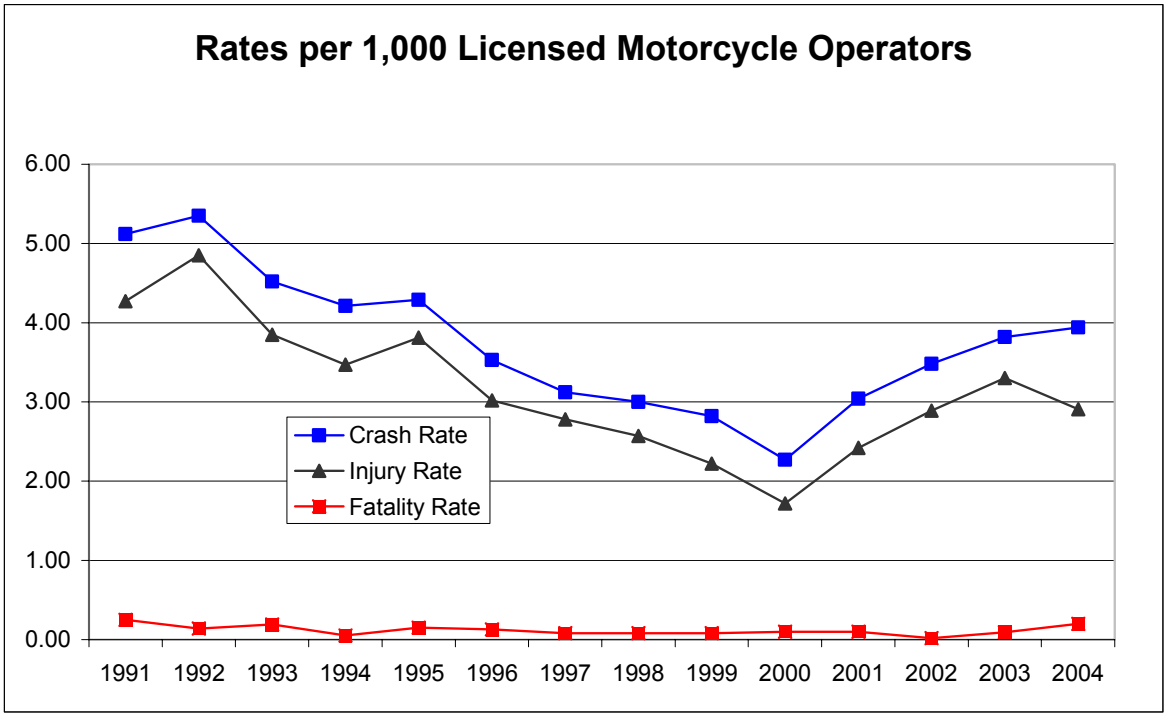
Motorcycle crash involvement is on the increase (175 in 2004 - highest since in 1995). Motorcycle licensed operators and registrations are increasing; nonetheless, this does not account for the increase in motorcycle crash involvement.

Figure 23

Motorcycle Summary Rates

1991 - 2004

Year	Crash Rate Per 1,000 Licensed Motorcycle Operators	Injury Rate Per 1,000 Licensed Motorcycle Operators	Fatality Rate Per 1,000 Licensed Motorcycle Operators	Crash Rate per 1,000 Registered Motorcycles	Injury Rate per 1,000 Registered Motorcycles	Fatality Rate per 1,000 Registered Motorcycles
1991	5.12	4.27	0.25	9.75	8.13	0.47
1992	5.35	4.85	0.14	10.40	9.42	0.27
1993	4.52	3.85	0.19	9.41	8.02	0.39
1994	4.21	3.47	0.05	9.33	7.68	0.11
1995	4.29	3.81	0.15	9.94	8.82	0.36
1996	3.53	3.02	0.13	8.42	7.20	0.30
1997	3.12	2.78	0.08	7.60	6.79	0.19
1998	3.00	2.57	0.08	7.30	6.25	0.19
1999	2.82	2.22	0.08	6.84	5.37	0.18
2000	2.27	1.72	0.10	5.34	4.05	0.23
2001	3.04	2.42	0.10	6.82	5.44	0.22
2002	3.48	2.89	0.02	8.08	6.72	0.06
2003	3.82	3.30	0.09	8.58	7.42	0.21
2004	3.94	2.91	0.20	7.62	5.62	0.39



Speed-Related Fatal Crashes

Figure 24

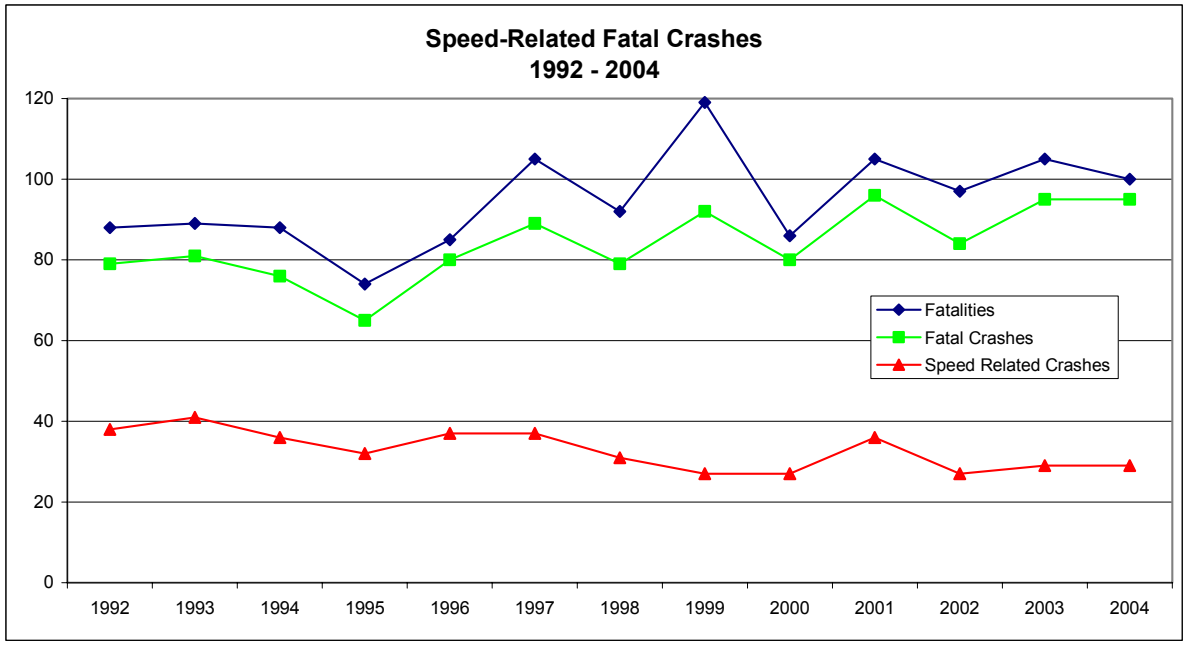


Figure 24 shows the relationship between fatal crashes, fatalities, and speed-related fatal crashes for the period 1992 – 2004.

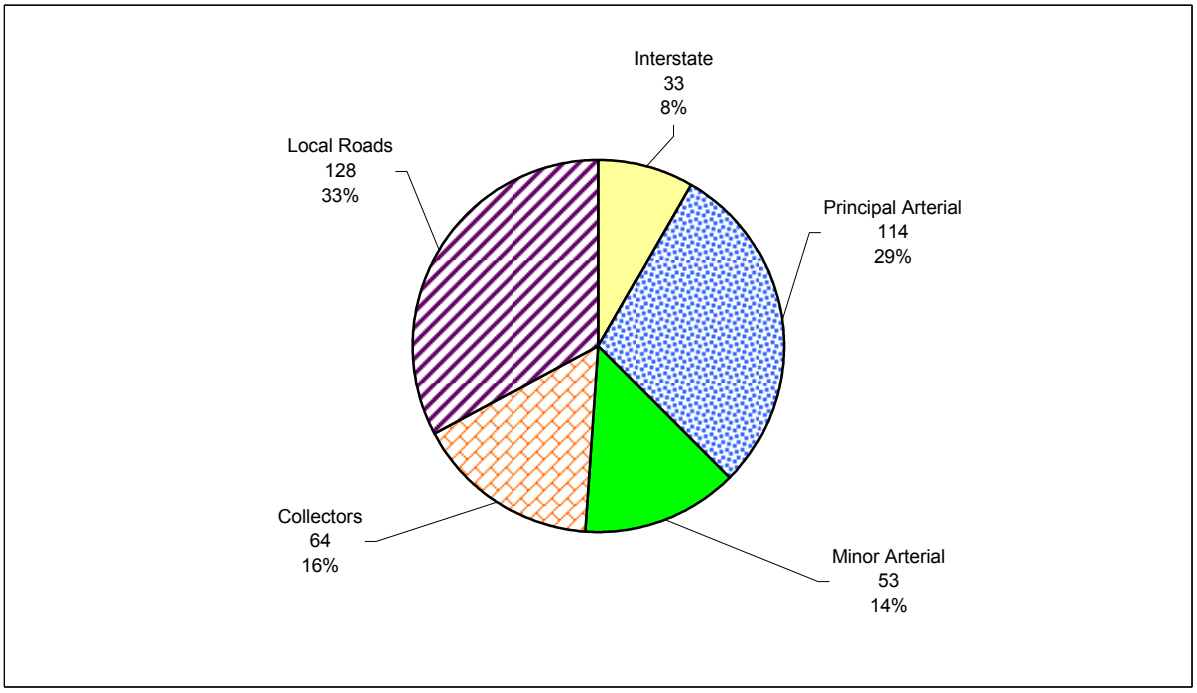
A cooperative effort is needed to effect speed control on ND highways. Law enforcement is responsible for enforcing the speed limits; nonetheless, education is needed to promote public compliance with speed limits. Legislation has provided for increased speed limits beginning in 2003. A comprehensive study, including injury and PDO severity, would be necessary to draw conclusions regarding the impact of these changes. Since 1995, fatal crashes have generally been on the increase. This may be related to the 1996 changes in speed laws, but the quantity of fatality data is too small for absolute conclusions.

Figure 25

Fatal Crashes on Rural Roadways

2000 - 2004

Roadway	2000	2001	2002	2003	2004	5 Years	Percent
Interstate	5	9	7	5	7	**33**	**8.4%**
Principal Arterial	12	28	25	18	31	**114**	**29.1%**
Minor Arterial	14	11	7	8	13	**53**	**13.5%**
Collectors	6	20	19	12	7	**64**	**16.3%**
Local Roads	29	23	15	36	25	**128**	**32.7%**
Total Rural	66	91	73	79	83	**392**	**100.0%**
Percent of Statewide	83.5%	98.9%	91.3%	83.2%	87.4%	**88.9%**	
Statewide	**79**	**92**	**80**	**95**	**95**	**441**	



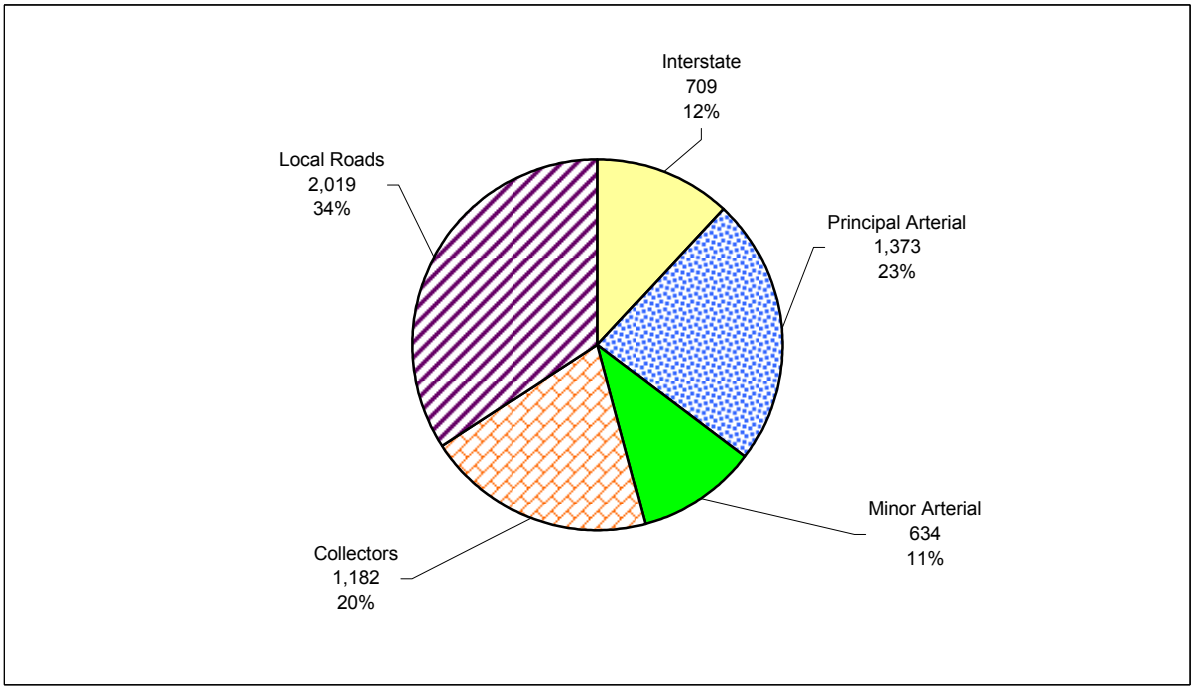
Over the past 5 years, 88.9% of fatal crashes have occurred on rural roadways. Less than 10% of these occur on the Interstate highways, while Interstate highways account for one fourth of the annual rural VMT. Local roads account for 17.9% of the annual rural VMT and 32.7% of the fatal crashes. See Appendix A for roadway definitions.

Figure 26

Injury Crashes on Rural Roadways

2000 - 2004

Roadway	2000	2001	2002	2003	2004	5 Years	Percent
Interstate	120	182	132	154	121	**709**	**12.0%**
Principal Arterial	234	308	253	321	257	**1,373**	**23.2%**
Minor Arterial	121	140	141	126	106	**634**	**10.7%**
Collectors	226	233	245	233	245	**1,182**	**20.0%**
Local Roads	378	377	429	452	383	**2,019**	**34.1%**
Total Rural	1,079	1,240	1,200	1,286	1,112	**5,917**	**100.0%**
Percent of Statewide	31.8%	37.4%	38.1%	39.5%	41.2%	**37.4%**	
Statewide	**3,394**	**3,312**	**3,153**	**3,252**	**2,701**	**15,812**	



Over the past 5 years, 37.0% of injury crashes have occurred on rural roadways. Only 12.0% of these occur on the Interstate highways, while Interstate highways account for 26.2% of the annual rural VMT. Local roads account for 17.9% of the annual rural VMT and 34.1% of the injury crashes. Please see Appendix A for roadway definitions.

Emergency Services

With regard to accessing emergency services, rural crashes pose a different problem than urban crashes. Each year, more than 2,500 traffic-crash victims are transported by ambulance services. Crash-related deaths are being kept to a minimum because: rural ambulance services are becoming more sophisticated in their treatment of individuals involved in motor vehicle crashes, better equipment and training are available, and response times are being shortened. Training and retaining EMS volunteers are keys to preventing injuries from becoming fatalities on North Dakota's rural roadways.

In 2001, of the 143 licensed ambulance services in North Dakota, there are 20 that are Advanced Life Support Services, meaning that they have paramedics on their calls and there are 123 Basic Life Support Services. Of the 143 ambulance services within the state, 123 are staffed by volunteers. There are 75 rescue services in North Dakota that are either light or heavy rescue. Heavy rescue refers to those services having "Jaws of Life" type equipment, and light rescue refers to those entities having hand-powered type rescue equipment.

The vast majority of North Dakota cities do not have adequate population to support full-time paid services; therefore, the state continues to rely heavily on volunteers to staff the EMS system. Retention and replacement of volunteers continues to be the most significant problem facing North Dakota's EMS system. Volunteers make up the vast majority of the EMS system, including the state's rescue squads and the state's quick response units.

If there is one recurring problem in North Dakota from a volunteer rural ambulance standpoint it is getting new recruits. Volunteerism is down in all aspects of society for any worthy cause, and to try to convince someone to commit to something where you need some fairly extensive initial training, and also the need to keep it up through refresher training and continuing education, and then carry a beeper for a period of time. Well I think you can see why that is a challenge to all of us committed to quality emergency care for the citizens of ND. [Quoted from a North Dakota Department of Health, EMS staff person.]

Statistics gathered from ambulance/hospital trip tickets (including responses to traffic crashes) show that response times are improving (***Figure 27***). A continuing goal of the EMS System is to reduce response times, which is a difficult task in a rural, sparsely-populated state. Median times are generally acceptable, but deviations from those median times can be substantial.

To maintain the statewide EMS System at its current level, financial assistance to recruit and train new volunteers must continue. Many ambulance/fire services have formed rescue squads, procured extrication equipment, and are transferring patients by air ambulance services to the emergency room hospital within one hour from the time of the crash (the Golden Hour).

Figure 27

2002 Ambulance Service Reports
Percentile and Response Times (Minutes)

	Percentile				
	10%	30%	50%	70%	90%
Received to Enroute	1	2	3	5	15
Time to Scene	1	3	4	6	19
Time at Scene	5	10	13	18	29
Scene to Destination	2	5	11	35	85
Time at Destination	8	14	21	32	60
Destination to Base	3	5	20	60	120
Received to Base	29	52	76	135	248

Time in minutes given in any percentile range is the percent of "runs" with the given length or less. For example: the time from when a call is received to when the ambulance is en route is two minutes or less in 30 percent of the cases, and three minutes or less in 50 percent of the cases; or, the elapsed time the ambulance crew is at the scene of the crash is thirteen minutes or less in 50 percent of the cases. (2003 data was unavailable)

Occupant Protection

Crash occupants who remain in their vehicles have a much better chance of escaping injury than those ejected from the vehicle. Of those killed in 2004, over 40% were totally or partially ejected from their vehicles.

Figure 28

Fatalities
Restraint System-Use by Body Type
(Auto, SUV, Van, Pickup) *

	1998			1999			2000		
	Non-Use	Lap & Shoulder Belt	Percent Restrained	Non-Use	Lap & Shoulder Belt	Percent Restrained	Non-Use	Lap & Shoulder Belt	Percent Restrained
Auto	33	9	21.4%	36	23	39.0%	33	8	19.5%
SUV	4	1	20.0%	3	3	50.0%	4	0	0.0%
Van	3	1	25.0%	5	3	37.5%	3	1	25.0%
Pickup	24	2	7.7%	28	1	3.4%	18	1	5.3%
ALL	64	13	16.9%	72	30	29.4%	58	10	14.7%

	2001			2002			2003		
	Non-Use	Lap & Shoulder Belt	Percent Restrained	Non-Use	Lap & Shoulder Belt	Percent Restrained	Non-Use	Lap & Shoulder Belt	Percent Restrained
Auto	31	18	36.7%	27	13	32.5%	28	10	26.3%
SUV	6	3	33.3%	6	6	50.0%	5	2	28.6%
Van	4	1	20.0%	6	1	14.3%	3	2	40.0%
Pickup	27	1	3.6%	25	1	3.8%	26	1	3.7%
ALL	68	23	25.3%	64	21	24.7%	62	15	19.5%

	2004			1998 - 2004		
	Non-Use	Lap & Shoulder Belt	Percent Restrained	Non-Use	Lap & Shoulder Belt	Percent Restrained
Auto	20	14	41.2%	208	95	31.4%
SUV	9	2	18.2%	37	17	31.5%
Van	3	1	25.0%	27	10	27.0%
Pickup	22	2	8.3%	170	9	5.0%
ALL	54	19	26.0%	442	131	22.9%

* All Other Vehicle Types Excluded

Source: FARS Intranet Query (Unknown Usage not included in analysis)

Restraint device use was compared for fatalities occurring in autos, SUVs, vans, and pickups from 1998 through 2003. Of the 170 fatalities occurring in pickups over this period, only nine (5%) were properly restrained compared to 31.4% for autos and 22.9% overall. Recent statewide surveys have also revealed less than one-half of pickup occupants were properly restrained (see **Safety Belt Use in North Dakota 2003** – published by the Office of Traffic Safety of the North Dakota Department of Transportation).

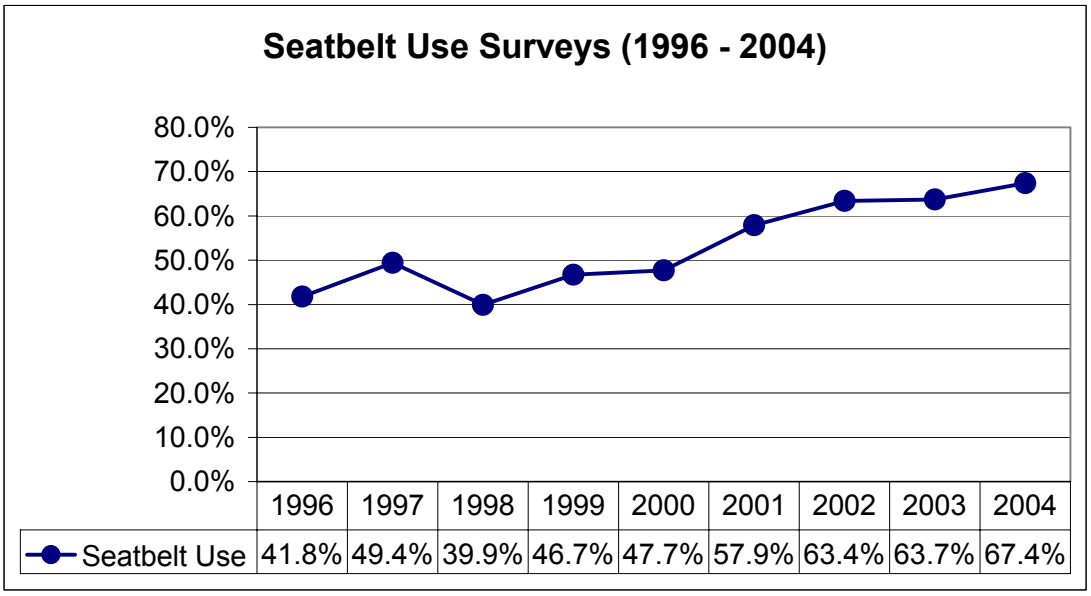
Figure 29

2002 - 2004 Restraint Device Usage
Ages 17 Years and Under

Safety Equipment	2002			2003			2004		
	Fatal	Injury	All	Fatal	Injury	All	Fatal	Injury	All
Not in Use	7	339	889	6	357	798	9	187	487
Lap Belt Only	0	34	268	0	43	274	1	28	200
Lap & Shoulder	2	490	4,109	0	488	3,960	2	506	3,917
Automatic Belts	0	3	27	0	3	29	0	3	30
CSS* Used Properly	0	45	568	0	51	567	1	50	562
CSS* Used Improperly	0	8	34	1	4	25	1	3	18
Other	0	57	119	3	49	107	0	61	144
Restraint Unknown	0	66	641	1	63	545	2	59	611
TOTAL	9	1,042	6,655	11	1,058	6,305	16	897	5,969

* Child Safety Seat

Figure 30



Seatbelt use has increased steadily including a 9.5% change over the past three years. The slight change from 2003 to 2004 (3.7%) may be an indicator the current efforts have reached a statistical plateau. Without a primary seatbelt law for all vehicle occupants, change will require the efforts of educators and law enforcement.

The National Occupant Protection Use Survey (NOPUS) indicated a national seatbelt usage rate of 79% for 2004 (75% for secondary states and 83% for primary states).

Alcohol-Related Crashes

Figure 31

Year	Total Fatal Crashes	AR Fatal Crashes	Percent AR Fatal Crashes	Total Fatalities	AR Fatalities	Percent AR Fatalities
2000	80	40	50.0%	86	42	48.8%
2001	96	48	50.0%	105	52	49.5%
2002	84	41	48.8%	97	48	49.5%
2003	95	48	50.5%	105	53	50.5%
2004	95	38	40.0%	100	38	38.0%
Total	450	215	47.8%	493	233	47.3%

Source: Fatality Analysis Reporting System

Year	Total Injury Crashes	AR Injury Crashes	Percent AR Injury Crashes	Total Injuries	AR Injuries	Percent AR Injuries
2000	3,153	455	14.4%	4,619	704	15.2%
2001	3,129	466	14.9%	4,608	737	16.0%
2002	3,252	524	16.1%	4,886	830	17.0%
2003	3,244	446	13.7%	4,817	738	15.3%
2004	2,701	554	20.5%	4,611	637	13.8%
Total	15,479	2,445	15.8%	23,541	3,646	15.5%

Source: Motor Vehicle Crash Reporting System Database

Criteria:
1. "DUI Citation"
2. "Alcohol Indicated" by investigating officer
3. Positive BAC
4. "Driver Condition" indicated as "had been drinking"

Over the past 5 years, 47.3% of fatalities and 15.5% of injuries occurred in alcohol-related crashes.

Alcohol is a significant factor in traffic crashes. Reducing the use of alcohol by the driving public could significantly reduce the number of injury crashes and, to a greater degree, the number of fatal crashes. The 2003 North Dakota Legislature passed a law which lowers the legal BAC while driving from 0.10 to 0.08. Enforcing this law will save lives and prevent injuries.

Figure 32

Driver Blood Alcohol Concentration Level
Counts of Fatalities Classified by Highest Driver BAC in Crash
Source: Fatality Analysis Reporting System (FARS)
1995 - 2004

	Highest Driver BAC in Crash							
Number of Fatalities	**0.00 or Not Reported**	**0.01 - 0.08**	**0.08 - 0.09**	**0.10+**	**Total Fatalities**	**Percent of Fatalities with a Positive Driver BAC ***	**Percent of Fatalities with a Driver BAC of 0.08 or Greater ***	**ALL Alcohol-Related Fatality Rate (See previous table)**
1995	31	7	**3**	33	74	58.1%	48.6%	**58.1%**
1996	49	3	**2**	31	85	42.4%	38.8%	**51.8%**
1997	55	3	**1**	46	105	47.6%	44.8%	**48.6%**
1998	48	4	**0**	40	92	47.8%	43.5%	**46.7%**
1999	63	6	**5**	45	119	47.1%	42.0%	**48.7%**
2000	45	3	**2**	36	86	47.7%	44.2%	**48.8%**
2001	56	9	**2**	38	105	46.7%	38.1%	**49.5%**
2002	55	7	**0**	35	97	43.3%	36.1%	**49.5%**
2003	56	6	**2**	41	105	46.7%	41.0%	**50.5%**
2004	56	4	**2**	38	100	44.0%	40.0%	**38.0%**
Total	514	52	**19**	383	968	46.9%	41.5%	

* Includes only drivers with a reported BAC level
* Does not include non-motorist BAC results (e.g. intoxicated pedestrians)

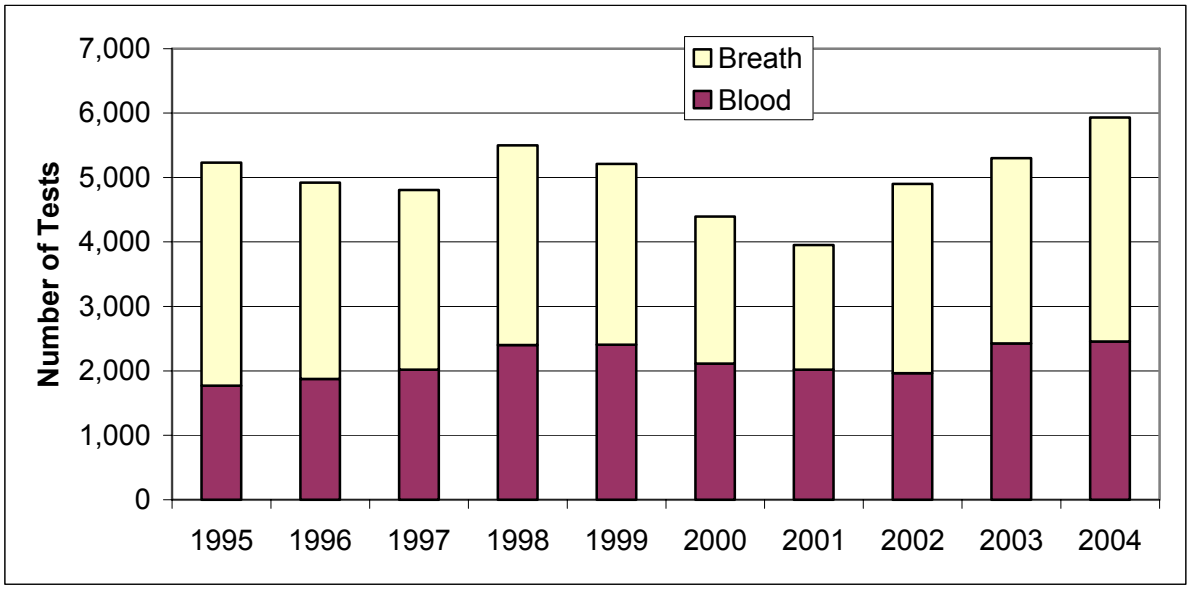
Over the past ten years, 19 persons died when the highest driver BAC in the crash was either 0.08 or 0.09 (average of 2 per year).

The Office of Attorney General, Division of Toxicology [legislative action in 2003 transferred this division to the Office of the Attorney General], has gathered the data of blood and breath statistics since 1982 (***Figure 33***). On average for the ten-year period (1995 – 2004), 2,458 blood tests and 3,475 breath tests (5,933 total) were conducted, per year, to determine whether an individual is alcohol-impaired while driving a motor vehicle. While 2001 breath testing was well below average, 2004 testing was very close to average for both blood and breath tests.

Figure 33

Blood and Breath Alcohol Tests, 1995 - 2004

Year	Blood	Breath	Total
1995	1,770	3,461	**5,231**
1996	1,872	3,048	**4,920**
1997	2,016	2,790	**4,806**
1998	2,402	3,096	**5,498**
1999	2,407	2,804	**5,211**
2000	2,114	2,283	**4,397**
2001	2,019	1,932	**3,951**
2002	1,962	2,939	**4,901**
2003	2,424	2,875	**5,299**
2004	2,458	3,475	**5,933**
Average	**2,144**	**2,870**	**5,015**



In 2004, approximately 87% of those tested for alcohol concentration registered a BAC over 0.10% by weight (***Figure 34***). Impaired drivers were most frequently apprehended while driving with an alcohol concentration of 0.15 - 0.19. The average blood alcohol concentration was 0.169 percent by weight, while the average breath-alcohol concentration was 0.160 percent by weight.

Figure 34

Blood and Breath Tests by BAC Level, 2004

Alcohol Concentration	Blood		Breath	
	Tests	Percent	Tests	Percent
0.00 - 0.04	62	2.5%	165	4.7%
0.05 - 0.07	78	3.2%	113	3.3%
0.08 - 0.09	175	7.1%	250	7.2%
0.10 - 0.14	674	27.4%	1,165	33.5%
0.15 - 0.19	746	30.3%	1,137	32.7%
0.20 - 0.24	457	18.6%	515	14.8%
0.25 - 0.29	194	7.9%	96	2.8%
0.30 - 0.34	59	2.4%	30	0.9%
0.35 - 0.39	12	0.5%	4	0.1%
0.40 +	3	0.1%	0	0.0%
Total	2,460		3,475	
Average BAC	0.169		0.160	
Average Age	33.4		32.3	

Figure 35

Blood and Breath Tests by Age, 2004

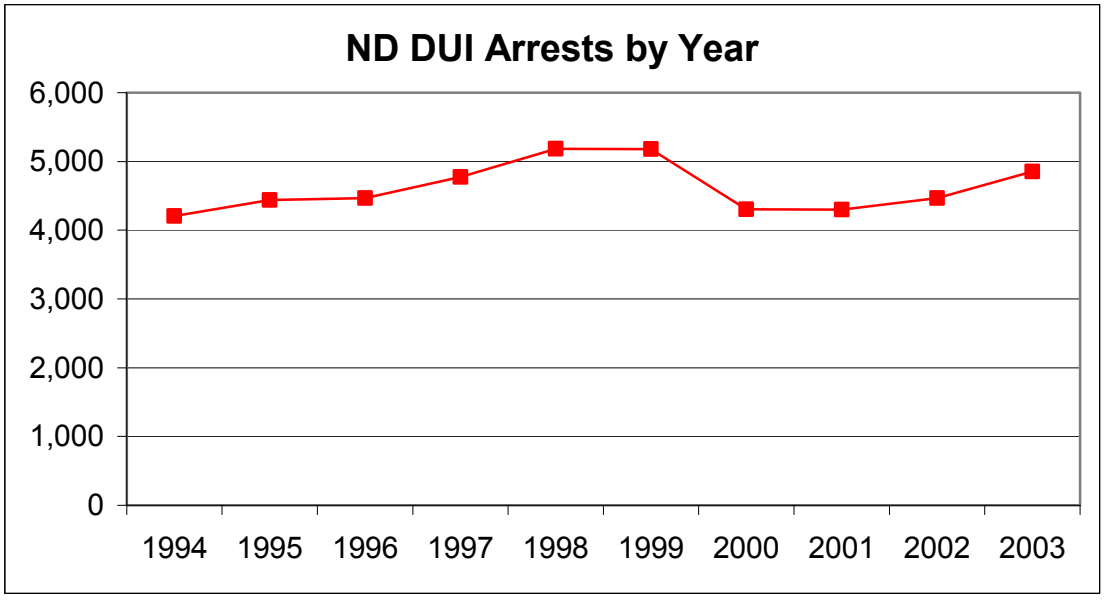
Alcohol Concentration	Blood		Breath	
	Tests	Average BAC	Tests	Average BAC
13 Years & Under	6	0.110	4	0.150
14 - 17	62	0.111	76	0.117
18 - 20	267	0.146	400	0.127
21 - 24	549	0.153	904	0.145
25 - 34	613	0.167	858	0.135
35 - 44	451	0.163	645	**0.161**
45 - 54	321	**0.192**	372	0.156
55 - 64	145	**0.175**	135	0.158
65 - 74	31	0.165	21	0.111
75 & Older	8	0.119	59	0.101
Not Stated	7	0.141	1	------
Total	2,460	0.169	3,475	0.160

BAC test data indicate the 25-34 age group has the highest incidence of tests leading to a charge of DUI. Based on the number of tests for the 14-20 age group, the youthful offender continues to be a problem in North Dakota. The **Bolded** age groups are groups whose average BAC is higher than the total average BAC levels. During the 1996 North Dakota State Legislative session, a new "zero tolerance" law was enacted. This law became effective August 1, 1997, and applies to anyone under the age of 21 caught driving with a BAC of .02 or greater.

Figure 36

DUI Arrests, 1994 - 2003

Year	Arrests	Percent Change from Previous Year
1994	4,206	-12.0%
1995	4,439	5.5%
1996	4,467	0.6%
1997	4,777	6.9%
1998	5,187	8.6%
1999	5,179	-0.2%
2000	4,304	-16.9%
2001	4,301	-0.1%
2002	4,467	3.9%
2003	4,854	8.7%
Average	**4,618**	**0.5%**

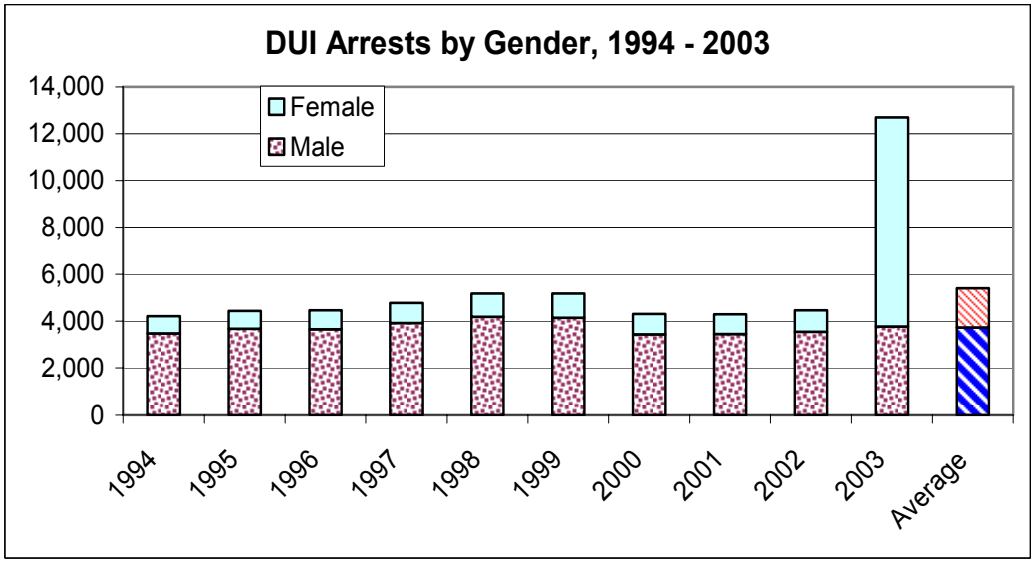


Based on publications from the Office of the Attorney General, numbers of DUI arrests for the ten-year period, 1994-2003, are quite variable from year to year. The average number of DUI arrests per year for this period is 4,618.

Figure 37

DUI Arrests by Gender, 1994 - 2003

Year	Male	% of Total	Female	% of Total	Total
1994	3,481	82.8%	725	17.2%	**4,206**
1995	3,672	82.7%	767	17.3%	**4,439**
1996	3,652	81.8%	815	18.2%	**4,467**
1997	3,917	82.0%	860	18.0%	**4,777**
1998	4,185	80.7%	1,002	19.3%	**5,187**
1999	4,149	80.1%	1,030	19.9%	**5,179**
2000	3,437	79.9%	867	20.1%	**4,304**
2001	3,450	80.2%	851	19.8%	**4,301**
2002	3,545	79.4%	922	20.6%	**4,467**
2003	3,763	29.6%	8,930	70.4%	**12,693**
Average	**3,725**	**69.0%**	**1,677**	**31.0%**	**5,402**



Males accounted for 69.0 percent of all DUI arrests, while females accounted for 31.0 percent over the ten-year period, 1994-2003 (***Figure 37***).

Figure 38

DUI Arrests by Age Category, 1994 - 2003

Year	Adult	% of Total	Juvenile	% of Total	Total *
1994	4,102	98.2%	77	1.8%	**4,179**
1995	4,351	98.3%	77	1.7%	**4,428**
1996	4,364	98.6%	62	1.4%	**4,426**
1997	4,624	97.8%	104	2.2%	**4,728**
1998	5,051	97.8%	114	2.2%	**5,165**
1999	5,005	96.7%	169	3.3%	**5,174**
2000	4,214	98.1%	81	1.9%	**4,295**
2001	4,207	97.9%	90	2.1%	**4,297**
2002	4,390	98.3%	74	1.7%	**4,464**
2003	4,759	98.1%	90	1.9%	**4,849**
Average	**4,507**	**98.0%**	**94**	**2.0%**	**4,601**

* "Age Not Reported" excluded from analysis

Figure 38 reflects a summary of DUI arrests by adult and juvenile age categories. "Juvenile" is defined as age 17 and under. Over the ten-year period, 1994-2003, adults accounted for 98.0 percent of all DUI arrests. Over the same period, juvenile DUI arrests were, on average, fewer than 100 per year.

Figure 39

DUI Arrests by Age Group
1994 - 2003

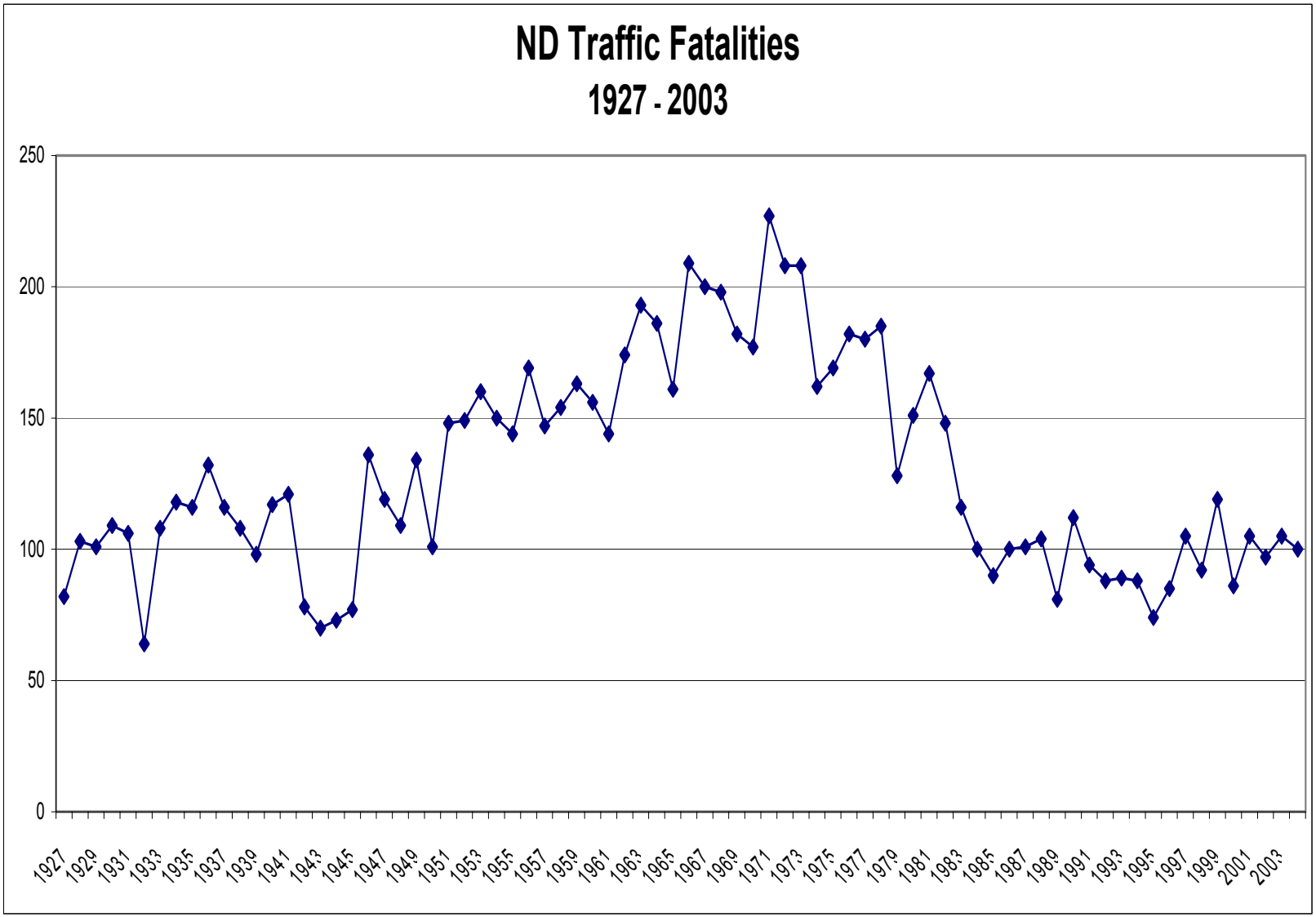
Age Group	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	Total	Percent
14 & Under	1	3	2	4	2	6	1	1	3	2	**25**	**0.1%**
15 - 17	76	74	60	100	112	163	80	89	71	88	**913**	**2.0%**
18 - 20	362	358	363	426	513	597	426	392	451	575	**4,463**	**9.7%**
21 - 24	735	760	806	777	903	966	866	907	962	1,181	**8,863**	**19.3%**
25 - 29	670	690	702	755	777	770	640	641	660	775	**7,080**	**15.4%**
30 - 34	751	756	713	711	713	641	520	526	507	526	**6,364**	**13.9%**
35 - 39	565	617	624	717	452	754	529	519	511	436	**5,724**	**12.5%**
40 - 44	383	435	475	506	566	493	473	499	520	480	**4,830**	**10.5%**
45 - 49	262	313	295	293	396	351	349	337	339	354	**3,289**	**7.2%**
50 - 54	162	173	159	191	188	207	185	187	232	214	**1,898**	**4.1%**
55 - 59	86	111	88	110	107	101	116	78	97	120	**1,014**	**2.2%**
60 - 64	52	59	56	69	58	50	42	43	51	46	**526**	**1.1%**
65 & Over	74	79	83	74	78	75	68	78	60	52	**721**	**1.6%**
Unknown	27	11	41	44	22	5	9	4	3	5	**171**	**0.4%**
Total	**4,206**	**4,439**	**4,467**	**4,777**	**4,887**	**5,179**	**4,304**	**4,301**	**4,467**	**4,854**	**45,881**	**100.0%**

According to statistics for the Office of Attorney General, nearly one-half of the DUI arrests were attributed to the 21-34 year-old age group from 1994 through 2003 (***Figure 39***). The total number of DUI arrests rose 8.7% from 2002 to 2003.

Age 18 – 44 comprise 81.4% of DUI arrests over the past 10 years.

Appendix A

Figure 40


ND Traffic Fatalities
1927 - 2003
250
200
150
100
50
0
1927
1929
1931
1933
1935
1937
1939
1941
1943
1945
1947
1949
1951
1953
1955
1957
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1961
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1967
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2001
2003

Roadway Definitions

Interstates: Limited-access, divided facilities of at least four lanes, designated by the FHWA as part of the Interstate System.

Principal Arterial: Major streets or highways, many with multi-lane or freeway design.

Minor Arterial: Streets and highways linking cities and larger towns in rural areas in distributing trips to small geographic areas in urban areas (not penetrating identifiable neighborhoods).

Collectors: In rural areas, routes serving intra-county rather than statewide travel. In urban areas, streets providing access to neighborhoods and direct access to arterial.

Local Streets and Roads: Streets, whose primary purpose is feeding higher-order systems, providing direct access with little or no through traffic.